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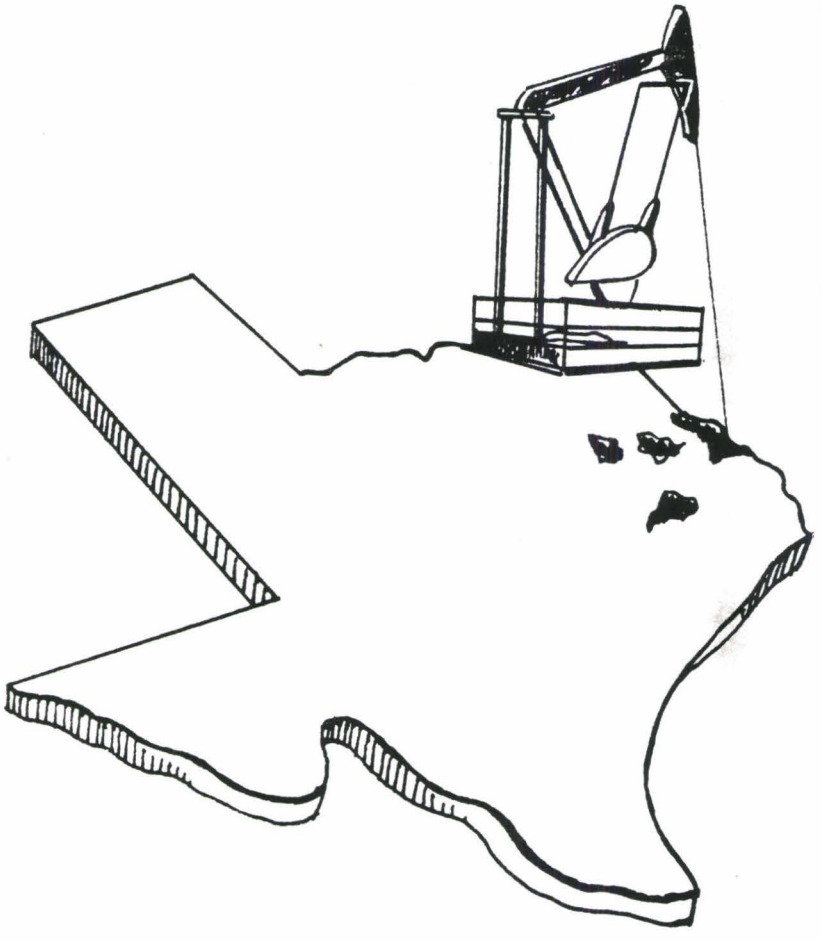
Oil & Gas Impacts on Perceived Wilderness Qualities in the Indian Mounds Wilderness Area



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Oil and Gas Impacts

on

Perceived Wilderness Qualities

in the

Indian Mounds Wilderness Area

by

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Title: Oil and Gas Impacts on Perceived Wilderness Qualities in the Indian Mounds Wilderness Area

Abstract: In October 1984, Congress established the 9,946 acre Indian Mounds Wilderness Area on the Sabine National Forest in deep east Texas. This was an area recommended as non-wilderness following the RARE II effort by the Forest Service. Several citizens groups led a concerted effort to designate the wilderness in spite of considerable prior impacts, existing roads, and ongoing oil and gas development. Approximately, 85 percent of the area is subject to oil and gas drilling because of valid existing rights. A description of the wilderness values in the area was developed from the proponents views recorded in the media and through personal visits with local proponents. This description of the proponents perceived wilderness qualities depicts the area as a good example of an east Texas pine/mixed hardwood forest that is nearing maturity. The proponents feel that the area's contiguous stands of 50 to 60 year old trees provide an adequate setting for pursuing their desired wilderness experiences (i.e. being alone, observing bird life, viewing large stands of trees free of clearcutting.)

The impacts of oil and gas development on these perceived values were considered. Wilderness proponents favor intensive rehabilitation of disturbed areas to promote rapid recovery of the wilderness. Mitigation measures were suggested to protect the wilderness and promote rapid recovery within the constraints of state and federal law and rights provided the mineral owner in the terms of his deed.

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Most importantly, my wife and kids deserve more than a few lines of prose expressing how much I appreciate their encouragement and understanding. Most of this project was accomplished on "their time".

Dedication

To my Mom and Dad

OIL AND GAS IMPACTS ON PERCEIVED WILDERNESS QUALITIES IN THE INDIAN MOUNDS WILDERNESS AREA

INTRODUCTION

On October 30, 1984, Public-Law 95-574,98 Stat. 3051, established the 9,946 acre Indian Mounds Wilderness Area (Appendix-A). This was one of five new areas totaling 34,346 acres established on National Forest land in East Texas in 1984. The Indian Mounds Area was recommended as non-wilderness by the Forest Service following its Roadless Area Review and Evaluation (RARE II) process. However, several citizens groups in Texas led a concerted effort to designate the area as wilderness, resulting in its present status.

A unique feature inside the Indian Mounds Wilderness, and the principle reason for this paper, is the presence of ongoing oil and gas development. This development is a valid existing right, specifically allowed in the legislation. The wilderness qualities which exist in the area are being impacted by an activity not usually associated with wilderness. Oil and gas development has the potential to permanently alter natural landforms, radically change soil fertility, and pollute surface and subsurface water sources. However, less severe damage can result when development is by a prudent oil company in concert with guidance from a resource management team.

This paper will identify and describe those wilderness qualities which are perceived in the area by proponents of the Indian Mounds Wilderness. The paper will discuss mitigating the adverse oil and gas impacts to protect these perceived wilderness qualities.

Description of the Area

The Indian Mounds Wilderness Area is located on the 104,000 acre Yellowpine Ranger District of the Sabine National Forest. The Forest is in the southeastern part of Texas, generally referred to as Deep East Texas (Figure 1). Houston is 180 miles southwest of the forest; Dallas is 275 miles to the northwest. The eastern boundary of the forest adjoins Toledo Bend Reservoir, which serves as the state boundary with Louisiana. Hemphill, the county seat of Sabine County, is located 5 miles west of the Indian Mounds Area.

The climate is characteristically hot and humid in the summer with a mean maximum July temperature of 93^{o} F. The majority of the 57 inch average rainfall comes in spring and fall. Heavy thunderstorms are common during frontal passages in these seasons. Winters are mild and short, with a mean minimum temperature in January of 39^{o} F. The growing season averages 240 days.

The wilderness is bisected by 3 major corridors: state highway FM 3382, gravel Forest Service Road 115, and a 150 ft. wide pipeline right-of-way. The roads carry an assortment of recreation, farm, oil-field, residential, and logging traffic. The largest contiguous acreage of this wilderness without a corridor is about 4,000 acres. Two subdivisions and one marina adjoin the wilderness with about 30 residents in each area.

The Sabine National Forest is located in the Pineywoods vegetation area of Texas (Gould, 1975). Most of the wilderness is dominated by loblolly and shortleaf pine approximately 50 years old. The wilderness, like most of

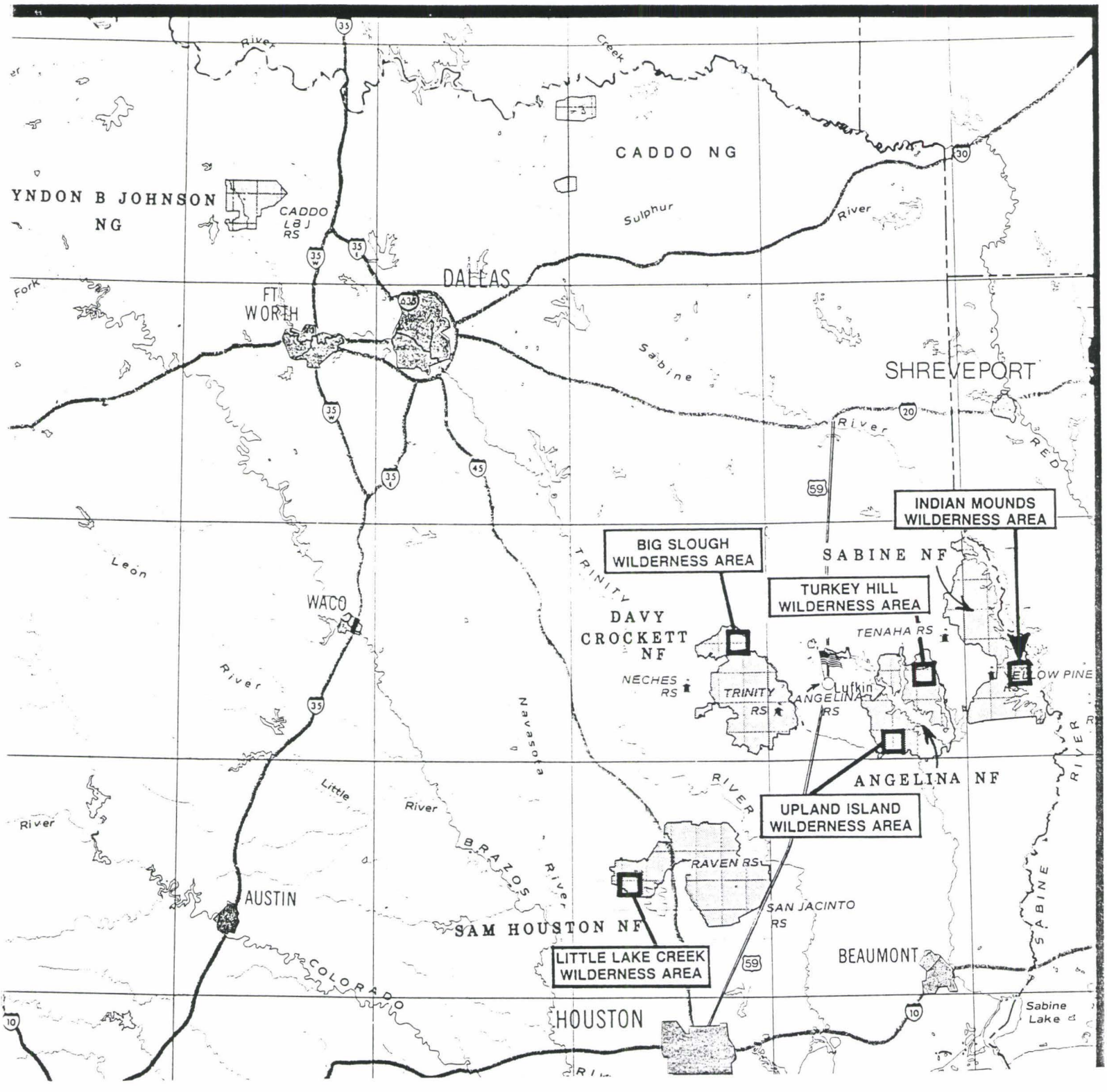

Figure 1. Location of five wilderness areas established 10-30-84, on the National Forests in Texas.

east Texas, was heavily logged in the 1920's. The existing timber stand is the result of voluntary regeneration and 50 years of management by the Forest Service. About 1500 acres of the area is dominated by upland hardwoods, primarily red oak, white oak, sweet gum and hickory. Bottomland hardwood stands containing water oak, cherry-bark red oak, black gum, and magnolia occur on about 300 acres. Roughly 300 acres of the area is in pine regeneration area, having been logged the past 10 years.

The wilderness wildlife populations are fairly typical of the Sabine National Forest (USFS,1977). The list of known species include 259 birds (64 yearlong residents), 45 mammals, 87 reptiles, and amphibians and 88 fish. Two endangered birds are known in the area, the bald eagle and red-cockaded woodpecker. The eagles are winter visitors to the Toledo Bend area. The woodpeckers have established one colony in a stand of mature shortleaf pine inside the wilderness. All of this bird life is found in other parts of the forest. The Yellowpine District has approximately 20 red-cockaded woodpecker colonies.

Status of Oil and Gas in the Indian Mounds Area

The Sabine National Forest was purchased by the federal government from various private owners in the mid-1930's. This resulted in a variety of mineral ownerships under the Forest. Three basic mineral ownerships are found in the Indian Mounds Wilderness.

1. U.S. Minerals - The mineral estate was purchased with the surface by the U.S.
2. Outstanding Minerals - The mineral estate was severed from the surface estate prior to acquisition by the U.S.

3. Reserved Minerals - The seller retained the mineral estate when he sold the surface estate to the U.S. In most cases the minerals would revert to government ownership after a specified time period.

Surface activities by reserved mineral owners were made subject to the Rules and Regulations of the Secretary of Agriculture of 1911 (Appendix B). Surface activities on outstanding minerals in the area are regulated by state law, not federal, since the mineral estate was severed prior to surface acquisition (Table 1).

Approximately 60,000 acres of the Yellowpine District was purchased in 1936, from one land owner. About 9,600 acres of that purchase was in the wilderness. The deed conveying the lands from that owner to the government reserved "all oil, gas and other valuable minerals" by the vendor for 50 years, ending 1-1-85. The deed allowed the "full right to enter" and to "prospect for and develop" those minerals "on, in and under" those lands (Sabine Co., TX Deed records). Further stated in the deed was a provision that any oil or gas well in production on 1-1-85 would reserve a 1/2 mile radius of mineral rights for another five years. The reserved acreage around each producing well would revert to U.S. ownership on 1-1-90, if the well went dry.

The drilling and exploration of reserved minerals in the Indian Mounds began several years prior to the designation of the new wilderness. The Indian Mounds area was intensively prospected with approximately 120 miles of shothole seismograph lines. By the time wilderness designation was finalized, the Indian Mounds had 18 wells drilled in it and several adjacent to it. By 1-1-85 producing wells reserved about 2750 acres inside the new wilderness area for future development by the reserved mineral owner. (Figure 2).

Table 1. Status of mineral ownership in the Indian Mounds Wilderness Area.

Status	Authority over Development	Acreage[1] 12-31-84	Acreage 1-1-85	%of Area 1-1-85
Reserved in Perpetuity	D[2] , Tx[3] , SR[4]	2800	2800	28
Outstanding	Tx	2900	2900	29
Reserved Subject to Reversion	D, Tx, SR	3750	2750	28
U.S. Ownership	US[5]			
Existing leases		500	500	5
No leases		-	1000	10

[1]Acreage estimates are pending title review by OGC.
[2]Deed of conveyance.
[3]State of Texas Law.
[4]Secretary of Agriculture's Rules and Regulations of 1911.
[5]U.S. Government, leased prior to wilderness designation.

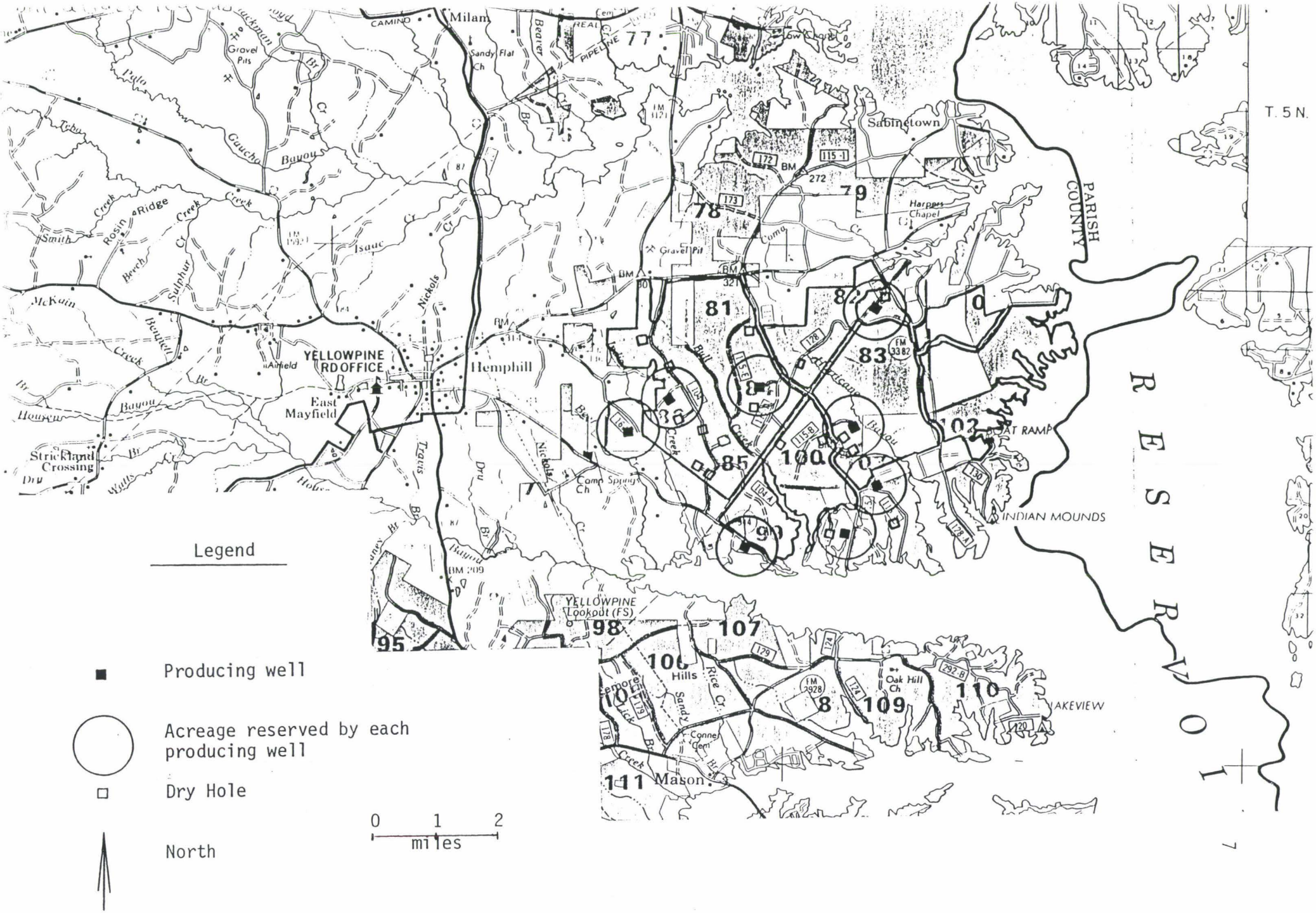

Figure 2. Location of well sites in and around the Indian Mounds Wilderness Area.

Roughly 85 percent of the wilderness area is still available for oil and gas development. The only area excluded for development currently is about 1500 acres of U.S. minerals which reverted to the government on 1-1-85. These lands will not be leased. The existing U.S. leases, about 500 acres, would not be released if they expire without development.

The discovery of oil and gas in the area suggests that all private mineral rights and existing U.S. leases will be developed. The challenge facing the Forest Service is to protect the wilderness values to the extent possible while oil and gas development proceeds within it.

OBJECTIVES

The objectives of this paper are:

1. Describe the wilderness qualities perceived by proponents of the Indian Mounds Wilderness Area.
2. Identify which aspects of oil and gas development adversly impact those wilderness qualities.
3. Identify those activities that can be mitigated within the constraints of relevant deeds and law.
4. Recommend management actions to protect the wilderness during oil and gas development.

PROCEDURES

This paper employed the following data gathering methods to meet the objectives of the study.

1. Review literature to describe wilderness qualities relevant to the Indian Mounds Wilderness Area.

2. Review relevant deeds, law, and Forest Service documents concerning oil and gas development by a reserved mineral owner in Texas.

3. Interview local proponents of the Wilderness to define their perceptions of the qualities.

These information sources were used to develop a rough description of the wilderness qualities that were perceived by proponents of the Indian Mounds Wilderness Area. The review also identified those oil and gas activities that could be mitigated to protect existing wilderness qualities. The personal visits with local proponents of the wilderness allowed a refinement of the perceived wilderness qualities. The conversations also helped verify which oil and gas activities were adverse to wilderness qualities.

These procedures employed a type of analytic inductive reasoning described and used by Bryan (1979). Bryan points out that strictly representative samples are not required for either the initial observation stage or verification stage of research. A meaningful product can result from using a relatively small sample size and building a description around those samples.

Personal contacts were designed to avoid conflicts with OMB regulations on interviews and public involvement. Conversations with the local citizens were conducted in a very unstructured, casual format. The author selected which citizens to visit based on their known support for the wilderness area. The visit was initiated by an offer to provide them with a look at a topographic map showing the boundaries of the wilderness and of the oil

and gas development. As the features were explained, the citizens volunteered their views about the new wilderness area, oil and gas development, and the Forest Service. The visits lasted from one to two hours. The author made notes of the citizens comments after leaving. The author did not attempt to persuade or modify any of the views expressed during the conversations.

LITERATURE REVIEW

Wilderness Qualities in the Indian Mounds Area

To protect a wilderness during oil and gas development a resource manager should have an understanding of which wilderness qualities are threatened. According to the Wilderness Act of 1964, a wilderness is an area which is untrammeled by man, land which has retained its primeval character and influence, without permanent improvements. In 1975, an amendment to the 1964 Wilderness Act was passed by Congress. This act identified a need to add areas to the National Wilderness Preservation System, particularly in the East. The criteria for considering areas was to consider roadless areas that would not normally fit the criteria given in the 1964 Act. This was due to more limited opportunities for inventory consideration in the East, the faster regenerative capacity to wilderness or near wilderness, and need for wilderness close to populated areas (USFS, 1979).

The basic criteria for wilderness in the East were identical to those elsewhere except that consideration was given to areas that didn't exceed more than one of the following:

1. - 1/2 mile of improved road for each 1,000 acres.
2. - 15% of area is in non-natural planted vegetation.
3. - 20% of area has been harvested within past 10 years.
4. - Area could contain a few dwellings if dwellings and access are obscured by natural features.

Using the RARE II process, the Forest Service concluded that the Indian Mounds area did not fulfill the criteria or intent of the 1975 amendment.

As prescribed by RARE II, the Forest inventoried and evaluated all lands in East Texas for inclusion to the National Wilderness Preservation System. In 1978, a Forest Service evaluation team made up of Landscape Architects, Foresters, and Recreation Specialist rated the Indian Mounds Area using a system known as the Wilderness Attribute Rating System. Their evaluation covered about 14,000 acres, including the core of the current 9,946 acre wilderness. By 1978, the team noted that the area had already experienced extreme impacts to its natural processes. The area had several roads through it, 150' wide pipeline right-of-way, and several utility rights-of-way. A "high" prior influence was noted in the area by these "physical developments" and "vegetation manipulation".

The most widespread prior influence on the area was logging. By 1930, the area had been intensively logged. Evidence of the past logging activity include the old flattened grades of narrow gauge railroads with their debris of rotted crossties, iron spiked and occasional iron track. One long-time resident of the Indian Mounds area remembered the timber stand prior to 1930.

He described the area south of highway 83 east of Hemphill (currently in wilderness), as very different from the present. Before it was logged, the area was dominated by mature longleaf pine. Longleaf covered all the high ground. Loblolly pine and beech were found down in the creek bottoms. He also recalled the area had virtually no shrubs since it was burned every year or two by the people who ran livestock over the area (Luther Wood, pers. comm.). The presence of large, open understory stands of mature longleaf resulted from hundreds of years of regular burning by native Americans prior to white man's settlement. The current stand of National Forest timber in the wilderness is the result of 50 years of management by the Forest Service.

The 1978 review further described the area as having a "very low" ability to provide solitude. The opportunity to experience primitive recreation was "low". The team gave the areas attributes of ecological, geological, scenic or cultural value as "infrequent". The single significant ecological attribute was the presence of one red-cockaded woodpecker colony.

At the time of the evaluation the apparent naturalness of the area had a "high" or "very high" impact rating because of mineral developments, vegetation manipulation and roads.

The 1978 review team did not recommend the Indian Mounds to wilderness because of such things as the high prior impacts in the area. The area was not recommended for wilderness in RARE II, but was put into a category for uses other than wilderness. But their recommendation does not mean

that the area was entirely void of wilderness qualities. The 1984 designation resulted because a different set of standards were applied by the citizens groups to recommend the area for wilderness. The citizens employed a liberalized concept of wilderness to include an area that would satisfy their purposes.

Forest Service recreation researchers have recognized that a new concept of wilderness is responsible for designation of new areas, particularly in Regions 8 and 9. Hendee (1980) recognized that wilderness is evolving to a liberalized and expanded concept. Wilderness designations in the East, he points out, are notably different from western wilderness areas in such key attributes as size, naturalness, and solitude.

This liberalized concept of wilderness may explain a criterion for wilderness designation as a place where a specific wilderness experience can be pursued. Roggenbuck (1980) found that on both sides of the country wilderness visits were to enjoy scenery, learn about and experience nature, for physical challenge and to escape physical, social and mental stress.

Proponents View of Indian Mounds Wilderness Qualities: Media Records

Media records provide a good insight to the proponents view of wilderness in Texas. These citizens assembled a fact sheet (Citizens, 1983) which characterized their perceived attributes of the Indian Mounds and other areas in the state. The media record also suggests that the citizens desire for wilderness designation was motivated by two things: wilderness

attributes and a desire to halt Forest Service management activities such as clearcuts. Their proposed areas were described as beautiful, diverse, distinctive, containing vanishing ecosystems, rare species, 22 champion trees, and numerous scenic vistas. Non-wilderness intrusions were recognized by the group and listed, including; "roads and clearcuts by the USFS". Corridors also exist and are "needed for access to private land".

The single most visible leader of the citizens groups was Mr. Edward C. Fritz, Chairman of the Texas Committee on Natural Resources. His support for wilderness designation was strongly motivated by his desire to stop clearcutting by the Forest Service. The anti-clearcut motive was detected from most of his fellow proponents of the Indian Mounds designation. According to Mr. Fritz, "the principle purpose of a wilderness is to keep it from being clearcut" (Gunter, 1983). He claims that Forest Service management would defraud our natural heritage from learning what the forests were like before they were so heavily clearcut. Specific concerns voiced by Mr. Fritz were that the Forest Service would (1) clearcut every stand of available timber at the end of rotation (2) grow pine on 94% of those regeneration areas (3) burn almost all stands periodically which kill the hardwoods (4) lose species diversity including insects, herbs, microflora and fauna, as well as declines of hardwoods such as beech and magnolia (Fritz, 1981).

Oil and gas development was not tagged as a threat to wilderness. Only the management activities of the Forest Service received that label: "Threats"

to wilderness - Forest service roads, clearcuts, prescribed burning, and regenerating 94% of the areas to pine. The potential for oil and gas development inside these proposed wilderness areas was recognized by the citizens. "Since all minerals are privately owned or leased, exploration and production will continue unabated regardless of designation". (Citizens, 1983).

No record was found of any effort by the citizens to halt future development by forcing minerals acquisition by the U.S. prior to wilderness disignation. The wilderness legislation specifically noted that the administration of the area will be subject to valid existing rights (e.g., oil and gas). The Lone Star chapter of the Sierra Club forwarded their desired wilderness management policy to the Forest Supervisor in a letter, dated 11-12-84. Their desired management policy "in no way prevents or prohibits oil and gas drilling".

The National Forests in Texas hosted a RARE II re-evaluation workshop in Lufkin in 1983, to solicit citizen views for ranking 12 roadless areas into a priority list. This session provided another record of the wilderness proponents view of wilderness attributes present in the Indian Mounds. This gathering brought together representatives of the Sierra Club, Texas Committee on Natural Resources, Texas Parks and Wildlife Department, Audobon Society, East Texas Conservation Society, Forest Service, Wilderness Society, Governor's Office, Texas Forest Service, Deep East Texas Development Association, Sportsmen's Club of Texas, and Texaco.

The working group compiled a list of the most important factors or criteria that should be considered when ranking the 12 roadless areas. Those factors in descending order of importance were:

1. Uniqueness
2. Ecosystems
3. Soil and Water
4. Size
5. Manageability
6. Wildlife
7. Succession
8. Aesthetics
9. Economics
10. Recoverability
11. Societal
12. Lack of use

The response of the working groups showed that they felt the Indian Mounds possessed natural attributes that merited protection of the area. After developing this list of factors, the group submitted a list which ranked the roadless areas for wilderness designation. The Indian Mounds area was ranked first or second by members of the Sierra Club, Audobon Society, Texas Committee on National Resources and the East Texas Conservation Society.

Proponents View of Indian Mounds Wilderness Qualities: Local Citizens

The author made personal visits to the homes of four local citizens who supported the Indian Mounds Wilderness Area. Three of the people are from families that had been in Sabine County for several generations. All of their responses reflected a deep appreciation for natural resources and for their county's forested heritage. They had strong feelings against timber companies that they feel are clearcutting every available acre of private land and managing for short rotation pulp production. They also

dislike Forest Service clearcuts even though the National Forests use a longer rotation favoring growth of larger trees than private companies.

Another significant factor surfaced while engaging these local proponents of wilderness. These citizens want to capture and revive memories of their youth, back when the county had very few clearcuts. It was a time, according to them, when thousands of acres of Sabine County were contiguous forest stands abundant with hardwood. Large pine regeneration areas were not a vivid part of their recollection. These citizens also remember a mature, bottomland hardwood forest that flanked the county line along the Sabine River. This forest had huge hardwood trees with virtually no pine.

The citizens explained that this bottomland hardwood forest was permanently wiped out by a lake they didn't want. Toledo Bend Reservoir completed in 1968, has inundated the entire Sabine County frontage of the old river bottom. The lake is 80 miles long, covering 181,000 acres. It flooded 31,000 acres of prime National Forest bottomland.

Most of the wilderness experiences sought by these citizens could have been satisfied in places outside the Indian Mounds Area 30 years ago. According to these citizens, it is now one of the only places left for their needs.

The author asked these citizens to describe the reasons why they went into the Indian Mounds Area and what they wanted to experience. A summary of their response follows:

1. To be alone.
2. To enjoy the thick canopy and beauty of 50 to 60 year old timber.
3. To be in a quiet place away from city noises.

4. To view wildlife.
5. To view particular hardwoods (i.e., hickory, beech magnolia, white oak, red oak).
6. To view specific forbs (e.g., yellow-ladyslipper orchid).
7. To view and collect fossils.
8. To view and photograph land forms and plants within a 200 yard vista.
9. To show kids several thousand acres of forest that is 50 to 60 years old and its natural processes of decay, regeneration, etc.
10. To see a large stand of timber dominated by hardwoods.
11. To escape all evidence of others.
12. To experience silence.
13. To listen to owls.
14. To refresh memories of youth (e.g., to experience a large uncut acreage of big trees along a creek).

These people all realize the imperfections of the area especially when comparing the Indian Mounds to the Gila or Bob Marshall Wilderness Areas. But to experience the above mentioned items through the next several generations of their families, these citizens believed that wilderness designation was necessary.

DESCRIPTION OF PERCEIVED WILDERNESS QUALITIES

The media records and conversations with the Indian Mounds proponents allowed the following general description of the areas perceived wilderness qualities.

Apparent Naturalness

The single most important quality in the area is the presence of 50 to 60 year old trees. Most of the experiences desired by the proponents required several thousand acres of mature or nearly mature trees. Such a timber stand

is very close to their reference point in describing what natural east Texas is supposed to be. However, all of the proponents seemed to understand that this wilderness area had unnatural intrusions. They expect to seek out the natural, quiet, solitary places for satisfying specific wilderness experiences.

The existing stands of 50 to 60 year old trees provide quiet places where they can experience solitude. The heavy underbrush and dense canopy in the area screen the users from most unnatural developments and from other users. For instance,an oil well is obscured from sight by the surrounding vegetation from less than 150 yards. In spite of surrounding noises, the proponents also view the area as a quiet place. The heavy growth in the area is an excellent sound insulator. Noises from the city, highway and lake are substantially muffled. Heavy traffic on roads through the area is usually not heard over one-half mile through the woods.

The proponents also consider the streams in the area to be in a near natural condition. Most of the streams are free-flowing and have no bridges or culverts in them. These streams host several uncommon plants such as the yellow-ladyslipper orchid. These stream bottoms are key features in the enjoyment of the area because of the bottomland and hardwood species found there.

The wilderness area is partially bounded by a large, manmade lake, Toledo Bend Reservoir. The lake has caused such unnatural intrusions as: outboard

motor noise, trash, and dramatic vegetation changes along the shoreline. One citizen noted these more subtle effects of the reservoir, as well as the unnatural increase in waterfowl and eagles in the wilderness. The lake is seldom mentioned by the wilderness proponents as adversly affecting their wilderness experience.

Before oil and gas development accelerated, the most unnatural feature in the Indian Mounds was considered to be the Forest Service clearcuts. These areas are a visual contrast to surrounding uncut timber stands. The young regeneration areas are avoided by the group. The pine regeneration areas appear to be a single species, single age stand of pine. Young hardwoods in the stands are not as visible as the pine. These regeneration areasoffer very few of the desired wilderness experiences expressed by the proponents. For instance, a visitor would have difficulty traveling or seeing through most regeneration areas because of the dense tangle of young stems. Most of the proponents believe that if they wait long enough, perhaps 100 years these pine areas will be replaced by hardwood.

Ecological/Scientific/Historical

Wilderness proponents see the area as a potential schoolroom for a demonstration of natural succession free of man's interference. They anticipate the existing forest will become a fairly stable population of trees. The possibility of insect or disease outbreaks is not adverse to their perception of wilderness. Pine mortality would be fairly well accepted by them as necessary to reach a natural balance of composition between pine and hardwood.

The wilderness is perceived as an island of natural ecological processes surrounded by forested land that is not natural. The difference between the ecologically balanced wilderness and the adjacent unbalanced land will become more obvious after time. Herein lies part of the scientific value of the wilderness, as perceived by the proponents. The area could be a study area for following vegetation changes after the release from Forest Service timber management activities.

The area does have two birds on the endangered species list; bald eagle and the red-cockaded woodpecker. Wilderness proponents consider that both birds add to the desirability of the area. These birds are found in several places around the Yellowpine District.

Other ecological values frequently mentioned by the proponents are usually found in the 50 to 60 year old timber stands in the Indian Mounds Area. For instance, viewing pileated woodpeckers, squirrels, and listening to owls is most likely satisfied in timber older than 30 years old. The groups did not express an interest in activities that were satisfied only in a clearcut, or in a young pine regeneration area. Indeed, the proponents could view wildlife or collect fossils in a clearcut, but they preferred to do those activities in a mature or nearly mature forests.

Geologic/Cultural Values

The geologic and cultural values mentioned by the proponents would not be of national significance. But to some residents of east Texas, a few

features are highly regarded. Traditional stories say that early settlers frequented several of the stony watering holes in the streams of the area. These areas contain remnants of old wagon trails crossing the streams, as well worn areas where clothes washing may have occured.

A few surface rock outcrops are also prized as sources of fossilized sea shells and sand dollars. These gravel areas are also along the streams.

Indian artifacts are not frequent in the area. No significant archeological sites have been recorded. The name "Indian Mounds" is something of a misnomer. It refers to some earthen humps now believed by archeologists to be a peculiar erosional or geologic feature. These humps are about one-half mile outside the wilderness.

Scenic Values

The area provides a key need expressed by all proponents of the wilderness. They all wanted to view large trees, growing in contiguous stands across several thousand acres. The Indian Mounds area has an abundance of pine and hardwood that is near maturity. Trees with a diameter greater than 24" are common; trees over 30" in diameter are easily found. Several trees in the area are close to state champion sizes. One national champion, the little hip hawthorn is about 200 yards outside the area.

Scenic values in the dense forest of east Texas are highly valued by the proponents. Their focus in viewing landforms, plants or animals is generally within 200 yards. Long vistas are not possible because the

dense vegetation closes off a long view and blocks out the scenery. Beauty that is close to the viewer, such as a delicate orchid, is more critical to these proponents than a panorama of the lake or its shoreline. A single, two-foot waterfall along a free flowing stream is prized, and would warrant a half mile hike to enjoy it.

Proponents of this wilderness recognize its imperfections. They would not expect it to withstand a comparison test against the large unspoiled western areas such as the Bob Marshall or Gila Wilderness Areas. However, it contains the two basic ingredients necessary for their enjoyment; (1) free of future Forest Service clearcuts, (2) 50 to 60 year old trees in large contiguous stands. These two qualities are prerequisites to their wilderness experience.

OIL AND GAS IMPACTS ON WILDERNESS QUALITIES

Oil and gas development generates impacts that are adverse to a wilderness experience. Drilling and development is accompanied by the use of heavy equipment, soil disturbance, and usually roads, to name a few of the associated unnatural conditions. Mitigating adverse impacts is an obvious goal of the resource manager. One objective of this paper was to identify which oil and gas impacts adversely affect wilderness qualities in the Indian Mounds Area.

The local wilderness proponents feel that oil and gas development is adversely impacting the wilderness. Specific impacts mentioned by the local citizens are described below:

Noise - Traffic, seismograph blasting, well pad construction, drilling rigs, road maintenance, pumpjacks, gas compressors, pipeline construction.
Visual - Traffic, equipment and facilities, landform changes, cleared rights-of-way, trash, erosional scars, vegetation changes.
Smells - Wastes in reserve pits on well pads, tank battery wastes, exhausts from vehicles, compressors, drilling rigs, fumes following seismic blasts.
Contamination - Unknown adverse inputs to surface from drilling pit leaks, pipeline leaks, transport accidents, unknown subsurface inputs to water quality.
Crowding - Additional people and equipment present throughout area.
Wildlife Threatened - Fewer natural acres because of occupancy and use, roaded areas provide easy access for violators.

MITIGATION MEASURES AND CONSTRAINTS ON FOREST SERVICE MANAGEMENT

Wilderness Management Implications

Wilderness management options in Texas are constrained by the valid existing rights guaranteed in the legislation. Managers must develop mitigation measures that are appropriate to impose on oil and gas activity that is specifically allowed in the legislation. These problems are discussed in general terms in the Forest's Proposed Land and Resource Management Plan (USFS, 1985). The plan does not deal specifically with mitigating oil and gas activities in wilderness. Also, no wilderness management plans have been developed yet on the Forest.

Forest Service requirements should conform with the authority provided by the deed of mineral conveyance and its appropriate Secretary Rules and Regulations. Complications arise when the agency wishes to be more restrictive than these instruments or state law permits a surface owner.

USDA's legal counsel has been cognizant of rights possessed by mineral owners in Texas. Surface protection measures developed in other states, and their survival in courts of other states, does not ensure their support in a Texas court.

Texas law (Warren Petroleum Corp. v. Monzingo 157 Tex. 479, 3045. W. 2d 362 [Tex. 1957]) has determined that the mineral interest owner is the dominant interest. Unless limited by the terms of the deed or lease, the mineral interest owner or his lessee has an implied easement to search for, develop and produce oil and gas. The extent of the surface use is governed by key terms "reasonably necessary to carry out the purpose of the lease". Past case law in Texas has shown that a surface owner's right to sue for damages is limited to situation where (1) use of the surface is excessive or is not reasonably necessary to conduct oil and gas operations, (2) use is not for the benefit solely of minerals under the tract leased or (3) use is contrary to the provision of the lease or statutes, ordinances, governmental rules or regulations.

Protecting wilderness qualities which rest on top of ongoing reserved or outstanding mineral development is a difficult management task. Communication with and cooperation by the mineral operator becomes a key to successful wilderness management. The Yellowpine District uses an assortment of permit clauses, stipulations, and resource management plans to reduce natural resource damage. The Yellowpine's permit attachments were developed by District and Supervisor's staff (Appendix C).

Currently, one oil company is operating in the Indian Mounds Wilderness Area. The author has discussed Forest Service wilderness management goals with the company. Both parties have identified ways to mute, soften, or blend in the oil and gas activities inside the wilderness. The company is willing to use reasonable methods of resource protection. The company has accepted operating permits which expand and clarify their responsibilities for surface protection beyond those mentioned in the deed of conveyance.

The company is concerned that the wilderness legislation may prompt more expensive site restoration than originally budgeted prior to drilling these wells. A small independent company relies on outside investors to fund the bulk of costs for exploration, development, and restoration. Investors rapidly lose interest in dry holes, leaving the company with an unwanted and unbudgeted expense. The company suggests that the Forest Service provide a cost estimate for restoration prior to well development. The estimate would be used by the company to bill investors for restoration work before the well was drilled. Another alternative would be a bond collected by the agency and used for restoration later.

The current procedure on the Yellowpine for abandoning a well site is for the company to use dozers to reshape the general landform contours, waterbar roadways and remove aggregate surfacing. Soil compaction and instable grades require a ground cover, such as rye or bermuda grass that germinates on a harsh site and rapidly spreads to stabilize the watershed. These grasses do not persist once reforestation progresses in three to five years. In the wilderness, invading woody plants such as pine and sweetgum will establish naturally while the grasses are stabilizing the watershed.

Wilderness proponents understood the need to quickly stablize and recover well sites. They did not want a 2.5 acre flat pad cut out of a sloping hill. Neither did they want it to take 75 years for it to recover. However, biodegradable erosion control netting, fertilizer or temporary fencing were palatable methods to the proponents if it promised stabilizing the watershed and promoting a speedy recovery.

As one local proponent explained it, a short-term intensive rehabilitation effort was OK if it meant their wilderness would be more natural because of the effort. According to him, the"concept of wilderness transcends an individuals lifetime or any one generation, ...given time the impacts will heal..., it heals much faster in southeast Texas than out west."

Future wilderness management by the Forest Service should recognize that oil and gas development will continue. Potentially, 85 percent of the area could be developed. Trail systems should be postponed or diverted to avoid these potential development areas. Visitors to the area would benefit from interpretive signs that explain why the wilderness contains oil and gas development.

The author has proposed several wilderness management objectives concerning oil and gas development in the area (Table 2). These objectives can be compared with the preferred actions by a typical oil and gas operator. for instance, a typical operator would want to build a pipeline or road on the shortest route possible to cut down on construction costs. The wilderness manager would not want to create new openings in the forest. Therefore, the operator would need to build along a route, where feasible, that utilizes existing corridors.

Table 2. Comparison of preferred actions by mineral operator vs. wilderness manager in various phases of oil and gas development.

	Mineral Operator's Preferred Action	Proposed Forest Service Wilderness Management Objectives
Development Phase Activity		
Road Construction	Meet FS standards when time permits construction. Use the shortest route possible	Meet FS standards. Access by following corridors with least resource impact.
Traffic	Access sites from either end of existing roads to be closed in area. No gates. No limit on amount of traffic	Limit access to one end of roads closed to public. Operator to gate all closed roads used to access wells. Limit traffic to authorized persons.
Well Pad	Clear and utilize 2.5 acres per site.	Minimize site to 1.5 acres where feasible.
Production Phase		
Facilities	Paint tanks silver to reduce heat gain and resulting evaporation.	Paint with earth tones to blend with background.
Pump Jacks	Install gas powered engines.	Install quiet gas powered engines.
Pipelines	Clear 30' to 40' right-of-way. Use shortest route. Trench through stream channels.	Minimize clearing to 20'. Follow existing corriders. Elevate pipes over stream channels and banks.
Rehabilitation Phase		
Aggregate	Leave in place or recover for use on another project.	Remove.
Cut/fill slopes	Leave in place.	Reshape to previous contour of area. Use erosion control netting or terraces.
Vegetation	No reseeding. Volunteer plant recovery.	Prepare seed bed, seed a specified mixture, fertilize, mulch. Protect from grazing if needed.

SUMMARY

In October 1984, a 9,946 acre area of Sabine County, Texas was added to the National Wilderness Preservation System. This acreage was intensively logged 60 years ago. Now, after 50 years of management by the Forest Service, the area is covered by quality stands of pine and hardwood trees. The Forest Service did not recommend this area for inclusion to the Wilderness System because of prior impacts evidenced through the area. However, several citizens groups felt that significant wilderness values are in the area. The citizens description of these wilderness qualities allowed the author to formulate a rough description of the wilderness qualities and experiences perceived in the Indian Mounds Wilderness Area.

According to the proponents of the Indian Mounds Wilderness, the area is close to what a natural east Texas forest is supposed to be. Their perceived wilderness experience is tied directly to large acreages of uncut forest. The Indian Mounds fulfills that need fairly well. The majority of its 9,946 acres of trees is the same age, 50 years old. The presence of several roads and corridors was not considered completely adverse to their wilderness experience. The primary threat to their experience had been clearcutting.

However, the local citizens recognize that many of their enjoyed experiences, such as quiet, solitude, clear streams and uncut timber are being seriously threatened by oil and gas development. Oil and gas development is a valid existing right on approximately 85% of the wilderness.

Adverse impacts from the mineral development includes dust, noise, noxious smells, aesthetic degredation, crowding, and contamination. Most of these impacts are caused by normal oil field operations. Standard industry practices by the reserved mineral owner should be allowed to continue as provided by state law, mineral deed, and appropriate Secretary Rules.

The Forest Service in co-operation with a prudent oil company can mitigate some of the adverse impacts. Wilderness management objectives were proposed to guide future development action in the area. Some of the recommended action include minimizing work areas, prompt clean-up, utilizing existing corridors, and vigorous site rehabilitation. The key to successful wilderness management will be to stabilize disturbed areas and encourage rapid vegetation recovery. Oil and gas impacts will be obvious in the area for several generations. However, eventually the favorable climate and vigorous vegetation of southeast Texas will allow the wilderness area to recover and obscure most of the adverse impacts of development.

LITERATURE CITED

Bryan, H.B. 1979. Conflict in the great outdoors: Toward understanding and managing for diverse sportsmen preferences. Social Studies No. 4, Univerisity of Alabama, Birmingham. 98 p.

Citizens. 1983. Forest Section: Basic facts on East Texas Wilderness proposal. Handout. 1 p.

Fritz, E.C. 1981. What's best for Texas Forests?: Editorial. In Houston Chronicle 3-3-81, Houston, Texas. p 15.

Gould, F.W. 1975. Texas plants - a checklist and ecological summary. Texas Agricultural Experiment Station Publication MP-585/Revised. College Station, Texas. 121 p.

Gunter, B. 1983. Annual wilderness pow wow planned. In This Week Entertainment, Houston pp 6-7.

Hendee, J.C. 1980. Principles of wilderness management applications for the east. In Vol. I Wilderness management handbook. USDA-Forest Service, Region 8, Atlanta, Georgia, pp 44-57.

Roggenbuck, J.W. 1980. Wilderness user preferences: eastern and western areas, 43 p. Mimeo on file, Virginia Polytechnic Institute and State University, School of Forest Wildlife and Recreation Resources, Blackburg, VA.

USDA - Forest Service. 1985. Proposed Land and Resource Management Plan National Forests and Grasslands in Texas. Lufkin, Texas.

USDA - Forest Service. 1981. Oil and gas operations on national forest land subject to reserved and outstanding mineral rights: guidelines. Region 8, Atlanta, Georgia.

USDA - Forest Service. 1979. RARE II Press Kit. Final Environmental Statement. Washington, D.C.

USDA - Forest Service. 1977. Sabine unit plan and final environmental impact statement. National Forests in Texas. Lufkin, Texas 196 p.

Ninety-eighth Congress of the United States of America

AT THE SECOND SESSION

Begun and held at the City of Washington on Monday, the twenty-third day of January, one thousand nine hundred and eighty-four

An Act

To designate various areas as components of the National Wilderness Preservation System in the national forests in the State of Texas.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Texas Wilderness Act of 1984".

DESIGNATION OF WILDERNESS AREAS

SEC. 2. In furtherance of the purposes of the Wilderness Act (16 U.S.C. 1131-1136), the following lands in the State of Texas are hereby designated as wilderness and, therefore, as components of the National Wilderness Preservation System:

(1) certain lands in the Angelina National Forest, Texas, which comprise approximately five thousand four hundred acres, as generally depicted on a map entitled "Turkey Hill Wilderness--Proposed", dated March 1984, and which shall be known as the Turkey Hill Wilderness;

(2) certain lands in the Angelina National Forest, Texas, which comprise approximately twelve thousand acres, as generally depicted on a map entitled "Upland Island Wilderness—Proposed", dated March 1984, and which shall be known as the Upland Island Wilderness;

(3) certain lands in the Davy Crockett National Forest, Texas, which comprise approximately three thousand acres, as generally depicted on a map entitled "Big Slough Wilderness—Proposed", dated March 1984, and which shall be known as the Big Slough Wilderness;

(4) certain lands in the Sabine National Forest, Texas, which comprise approximately nine thousand nine hundred and forty-six acres, as generally depicted on a map entitled "Indian Mounds Wilderness—Proposed", dated September 1984, and which shall be known as the Indian Mounds Wilderness; and

(5) certain lands in the Sam Houston National Forest, Texas, which comprise approximately four thousand acres, as generally depicted on a map entitled "Little Lake Creek Wilderness—Proposed", dated March 1984, and which shall be known as the Little Lake Creek Wilderness.

MAPS AND DESCRIPTIONS

SEC. 3. As soon as practicable after enactment of this Act, the Secretary of Agriculture shall file a map and legal description of each wilderness area designated by this Act with the Committee on Interior and Insular Affairs and the Committee on Agriculture of the United States House of Representatives and with the Committee on Agriculture, Nutrition, and Forestry of the United States Senate. Each such map and description shall have the same force and effect as if included in this Act, except that correction of clerical and

typographical errors in each such map and description may be made by the Secretary. Each such map and description shall be on file and available for public inspection in the Office of the Chief of the Forest Service, Department of Agriculture.

ADMINISTRATION OF WILDERNESS

SEC. 4. (a) Subject to valid existing rights, each wilderness area designated by this Act shall be administered by the Secretary of Agriculture in accordance with the provisions of the Wilderness Act governing areas designated by that Act as wilderness, except that any reference in such provisions to the effective date of the Wilderness Act shall be deemed to be a reference to the date of enactment of this Act.

(b) The Congress finds that the Indian Mounds and Upland Island Wilderness areas designated by this Act contain significant amounts of intermingled lands owned by the Temple-Eastex Incorporated and that in order to manage the wilderness in an efficient and effective manner it is in the public interest that these lands be owned by the Federal Government. Accordingly, the Secretary is encouraged to expeditiously acquire by exchange the intermingled lands owned by Temple-Eastex Incorporated. The lands acquired by the United States under the provisions of this section shall become parts of the Sabine and Angelina National Forests, respectively, and shall be administered in accordance with the laws, rules, and regulations applicable to the National Forest System and the National Wilderness Preservation System, as appropriate.

(c) Any purchaser under an existing timber sale contract wholly or partially within the boundaries of the Indian Mounds, Upland Islands, or Little Lake Creek Wilderness areas designated by this Act shall be entitled, for a period of ninety days following the date of enactment of this Act, to enter into an agreement with the Secretary to mutually cancel the timber sale contract without payment of damages by either party if the contract is not in breach and if the purchaser has completed its contractual obligations to logical stopping points as determined by the Secretary after consultation with the purchaser: *Provided,* That upon satisfaction of all such contract requirements, moneys held by the Forest Service for payment of timber to be cut under the contract shall be returned to the purchaser with interest payable from the date the moneys were deposited with the Forest Service at the rate published for use under section 12 of the Contract Disputes Act of 1978 (41 U.S.C. 611).

EFFECT OF RARE II

SEC. 5. (a) The Congress finds that—

(1) the Department of Agriculture has completed the second roadless area review and evaluation program (RARE II); and

(2) the Congress has made its own review and examination of National Forest System roadless areas in the State of Texas, and of the environmental impacts associated with alternative allocations of such areas.

(b) On the basis of such review, the Congress hereby determines and directs that—

(1) without passing on the question of the legal and factual sufficiency of the RARE II final environmental statement (dated January 1979) with respect to National Forest System

lands in States other than Texas such statement shall not be subject to judicial review with respect to National Forest System lands in the State of Texas;

(2) with respect to the National Forest System lands in the State of Texas which were reviewed by the Department of Agriculture in the second roadless area review and evaluation (RARE II) and those lands referred to in subsection (d), that review and evaluation or reference shall be deemed for the purposes of the initial land management plans required for such lands by the Forest and Rangeland Renewable Resources Planning Act of 1974, as amended by the National Forest Management Act of 1976, to be an adequate consideration of the suitability of such lands for inclusion in the National Wilderness Preservation System and the Department of Agriculture shall not be required to review the wilderness option prior to the revisions of the plans, but shall review the wilderness option when the plans are revised, which revisions will ordinarily occur on a ten-year cycle, or at least every fifteen years, unless, prior to such time the Secretary of Agriculture finds that conditions in a unit have significantly changed;

(3) areas in the State of Texas reviewed in such final environmental statement or referenced in subsection (d) and not designated wilderness upon enactment of this Act shall be managed for multiple use in accordance with land management plans pursuant to section 6 of the Forest and Rangeland Renewable Resources Planning Act of 1974, as amended by the National Forest Management Act of 1976: *Provided*, That such areas need not be managed for the purpose of protecting their suitability for wilderness designation prior to or during revision of the initial land management plans;

(4) in the event that revised land management plans in the State of Texas are implemented pursuant to section 6 of the Forest and Rangeland Renewable Resources Planning Act of 1974, as amended by the National Forest Management Act of 1976, and other applicable law, areas not recommended for wilderness designation need not be managed for the purpose of protecting their suitability for wilderness designation prior to or during revision of such plans, and areas recommended for wilderness designation shall be managed for the purpose of protecting their suitability for wilderness designation as may be required by the Forest and Rangeland Renewable Resources Planning Act of 1974, as amended by the National Forest Management Act of 1976, and other applicable law; and

(5) unless expressly authorized by Congress, the Department of Agriculture shall not conduct any further statewide roadless area review and evaluation of National Forest System lands in the State of Texas for the purpose of determining their suitability for inclusion in the National Wilderness Preservation System.

(c) As used in this section, and as provided in section 6 of the Forest and Rangeland Renewable Resources Planning Act of 1974, as amended by the National Forest Management Act of 1976, the term "revision" shall not include an "amendment" to a plan.

(d) The provisions of this section shall also apply to National Forest System roadless lands in the State of Texas which are less than five thousand acres in size.

Speaker of the House of Representatives.

Vice President of the United States and
President of the Senate.

Secretary of Agriculture

RULES AND REGULATIONS TO GOVERN THE EXERCISE OF MINERAL RIGHTS RESERVED IN CONVEYANCE TO THE UNITED STATES UNDER THE WEEKS LAW ACT OF MARCH 1, 1911 (37 STAT., 961)

The operations for mining and removal of gas, oil and other valuable minerals, shall be conducted in accordance with the rules and regulations prescribed by the Secretary of Agriculture of the United States of America, which rules and regulations are as follows:

1. Every person claiming the right to prospect for minerals, oil, or gas, or the products thereof, or to mine, drill, develop or operate in or upon lands acquired by the United States under the provisions of the Act of March 1, 1911 (36 Stat., 961), with a reservation to the grantor of mineral, oil, or gas rights, must, on demand, exhibit to the Forest officer in charge, satisfactory written evidence of right or authority from, through, or under the said grantor. Mining, prospecting or searching for minerals, oil, or gas, except by those producing such evidence of right or authority, is forbidden.

2. In prospecting for, and in mining and removing minerals, oil, or gas, and in manufacturing the products thereof, only so much of the surface shall be occupied, used or disturbed as is reasonable and, according to recognized good practice, necessary for the purpose.

3. In underground operations all reasonable and usual provision shall be made of the support of the surface, and to that end the tunnels, shafts, and other working shall at all reasonable times be open to inspection and examination by the Forest officers and mining experts or inspectors of the United States.

4. All miners or mining operators shall make provision to the satisfaction of the Forest officer in charge for preventing the obstruction, pollution, or deterioration of streams, lakes, ponds, or springs, by tailings, dumpage, or otherwise, or the escape of any harmful deleterious material or substance from their mines or works; and in the drilling for oil and gas, as well as in the pumping, piping, manufacturing, or operation of oil and gas wells, or plants for the production of same, the operators shall make provisions by ditches, pipes, pumps or other approved practical methods to prevent the spread or flow of oil, salt water, or other deleterious matter over the surface of the land, or into streams, lakes, ponds or springs.

5. The method commonly known as "hydraulic mining" is positively forbidden.

6. Payment at the usual rates charged in the locality for sales of National Forest timber, and timber products of the same kind or species, shall be made to the United States for all timber undergrowth, or young growth, cut, destroyed, or damaged in prospecting, mining, drilling, or removing minerals, oil, or gas, or in manufacturing products therefrom, and in the location and construction of buildings or works of any kind for use in connection therewith. All slash resulting from such cutting or destruction shall be disposed of as directed by the Forest officer when inflammable in his judgment. No timber, undergrowth, or reproduction shall be unnecessarily cut, destroyed, or damaged.

7. No timber shall be cut or used for or in connection with any of the foregoing uses or purposes except with the permission of the proper officer first obtained and upon payment therefor at the price or prices fixed for timber of similar kinds, at the usual rates as specified in the above paragraph 6.

8. Buildings, camps, roads, bridges, and other structures or improvements necessary in carrying on mining, oil, or gas operations shall be located as approved by the Forest officer in charge, except as to the location of oil or gas derricks, rigs, boilers and tanks, which are to be located, however, according to recognized good practice. When a building, camp, or other structure is removed from one location to another, all debris resulting from such removal shall be burned or otherwise disposed of as directed by the Forest officer in charge.

9. All buildings, camps and other structures shall be removed within six months after the completion of mining, oil, or gas operations, or the commercial exhaustion of the aforesaid minerals, oil, or gas; and all buildings, other structures, materials, tools, and equipment not removed from the land of the United States within six months after the aforesaid completion of mining or gas operations, or the commercial exhaustion of the aforesaid minerals, oil or gas, shall become the property of the United States.

10. All destructible refuse, waste material and other debris caused by the mining use, oil or gas operations hereunder which interfere with the administration of the Forest or endangers forest growth, shall within six months after the completion of said operations, or the commercial exhaustion of the aforesaid minerals, oil, or gas, be disposed of as directed by the Forest officer in charge.

11. While operations are in progress, the operators, contractors, subcontractors and employees of contractors and subcontractors at work on the National Forest shall use due diligence in the prevention and suppression of all fires within that particular locality, and shall be held responsible for any fires of which they are directly or indirectly the cause.

Appendix C

Permit Clauses and Attachments for
Well Sites on the Yellowpine District

CLAUSES

1. *This permit is subject to all valid claims.*

2. *In case of change of address, permittee shall immediately notify the forest supervisor.*

3. *The permittee shall comply with all requirements of the laws of the State of* Texas *, as well as the laws of the United States.*

4. *The permittee shall be responsible for the prevention and control of soil erosion and gullying on the area covered by this permit and lands adjacent thereto, and shall provide preventive measures as required by specifications attached to and made a part of this permit.*

5. *No waste or byproducts shall be discharged if it contains any substances in concentrations which will result in substantial harm to fish and wildlife, or to human water supplies.*

   Storage facilities for materials capable of causing water pollution, if accidentally discharged, shall be located so as to prevent any spillage into waters, or to channels leading into water, that would result in substantial harm to fish and wildlife or to human water supplies.

6. *The permittee shall protect the scenic esthetic values of the area under this permit, and the adjacent land, as far as possible with the authorized use, during construction, operation and maintenance of the improvements.*

7. *No national forest timber may be cut or destroyed without first obtaining a permit from the forest supervisor.*

8. *All access roads will be built on locations and to specifications approved in advance of construction by the Forest officer in charge.*

9. *The permittee shall provide, whenever requested by the forest officers, a way across the land covered by this permit for the free ingress or egress of forest officers and for users of national-forest land and purchasers of national forest products.*

10. *The permittee shall fully and currently repair all damage other than ordinary wear and tear, to national forest roads and trails caused by the permittee in the exercise of the privilege granted by this permit.*

11. *The permittee shall comply with the regulations of the Department of Agriculture governing the national forest, observe all sanitary laws and regulations applicable to the premises, and keep the premises in a neat and orderly condition.*

12. This permit may be transferred with the approval of the officer by whom it was given or his successor, subject to such conditions as may be imposed at the time of transfer. It shall terminate upon breach of any of the conditions herein but in event of such termination a new permit will be issued upon application when the causes for termination of the preceding permit have been satisfactorily remidied and the United States reimbursed for any resultant damage.

13. No Member of, or Delegate to, Congress shall be admitted to any share or part of this agreement or to any benefit that may arise herefrom unless it is made with a corporation for its general benefit.

14. In the event of any conflict between any of the provisions contained in this permit and provisions contained in the Secretary's Rules and Regulations, the provision of the latter will control.

ATTACHMENT #1

Restoration and Resource Protection Plan

ACTIVITY PHASES

PHASE	DESCRIPTIONS & CONTROLS
1. Notification for proceeding	District Ranger shall be notified in advance of all work involving surface disturbances. A minimum of 5 working days is requested when feasible.
2. Removal of vegetation	All vegetation shall be cut and removed from location or disposed of as directed by the Forest Service.
3. Construction of well location	Construction of well location shall be approved by the Forest Service prior to authorizing drilling operation.
4. Drilling operation	No excavation will be done during the drilling operation unless approved by the Forest Service.
5. Installation of production facilities	The location of production equipment and flow lines will be shown on a map and approved by the Forest Service.
6. Location stabilization and other resource protection	These items will be done as specified in Attachments #2 & #3.
7. Road construction (access road)	The road will be constructed and maintained according to Attachments #4 & #5.

ATTACHMENT #2

SPECIFICATIONS IF WELL IS A PRODUCER

Specifications for well:

1. Site Plan - A schematic layout of the rig location, pits, and other facilities necessary to the drilling and production operations will be submitted by the operator for approval by the District Ranger.

2. Stumps and Slash Disposal - Stumps and slash resulting from drilling activities shall be disposed of as directed by the Forest Service. In no instance will any stumps or slash be buried within the perimeter of the well site.

3. Activity Locations - All activities made necessary by the drilling operation shall be confined to that area shown on the location plat and designated on the ground.

4. Clean-Up - Clean-up of area must be complete and done daily. All equipment, junk, trash, garbage, etc. shall be removed Until disposed of properly it must be kept in a container or pit. Portable toilets to be used and waste hauled to an approved disposal plant.

5. Disturbed Area - The disturbed area shall be left reasonable smooth with all holes and depressions filled in.

6. Slopes - Back-slopes and fill-slopes shall be constructed, if possible, on a 3 to 1 slope. If a 3 to 1 slope is not possible, the slopes shall be fitted into the topography as directed by the Forest Service.

7. Erosion Control Structures - Adequate provisions shall be made to provide for breaking up water flow on the well site slopes. This can be accomplished by establishing contour terraces at intervals across the slope. Intervals should be dictated by the ground conditions as instructed by the Forest Service.

8. Fertilization - Following the construction of erosion control structures, a complete fertilizer such as 13-13-13 or any other complete fertilizer will be applied to the area to be revegetated in quantities necessary to furnish a minimum of 65 pounds of nitrogen per acre.

9. Disking - When necessary, a tractor and disk will be used to prepare a proper seed bed.

10. Seeding - Seed will be applied to a prepared seed bed according to attached sheet "Seeding Species, Rates and Seasons".

11. Mulching - Any acceptable mulch (e.g. hay or straw) will be applied at the rate of at least 1 ton per acre on the revegetated area.

12. Reserve Pit - As soon as drilling of well is completed, liquids and drilling mud in the reserve pit are to be pumped out by vacuum truck, the pit allowed to dry and then backfilled and levelled as soon as possible. The pit must be fenced to keep cattle out until properly restored.

ATTACHMENT #3

SPECIFICATIONS IF WELL IS A DRY HOLE

Specifications for well:

1. Clean-up - Clean-up of area must be complete. All equipment, junk, trash, garbage, etc. shall be removed or buried. Until disposed or properly it must be kept in a container or pit. Portable toilets to be used and waste hauled to an approved disposal plant.

2. Disturbed Area - The disturbed area shall be left reasonably smooth with all holes and depressions filled in.

3. Slopes - Back-slopes and fill-slopes shall be constructed, if possible, on a 3 to 1 slope. If a 3 to 1 slope is not possible, the slopes shall be fitted into the topography as directed by the Forest Service.

4. Erosion Control Structures - Adequate provisions shall be made to provide for breaking up water flow on the well site slopes. This can be accomplished by establishing contour terraces at intervals across the slope. Intervals should be dictated by on the ground conditions as instructed by the Forest Service.

5. Fertilization - Following the construction of erosion control structures, a complete fertilizer such as 13-13-13 or any other complete fertilizer will be applied to the area to be revegetated in quantities necessary to furnish a minimum of 65 pounds of nitrogen per acre. Lime and fertilizer rates to be determined by soil analysis.

6. Discing - A tractor and disc will be used to prepare a proper seed bed.

7. Seeding - Seed will be applied to a prepared seed bed according to attached sheet "Seeding Species, Rates, and Seasons".

8. Mulching - Any acceptable mulch will be applied at the rate of at least 1 ton per acre on the revegetated area.

9. Reserve Pit - As soon as drilling of well is completed, liquids and drilling mud in the reserve pit are to be pumped out by vacuum truck, the pit allowed to dry and then backfilled and levelled as soon as possible. The pit must be fenced to keep cattle out until properly restored.

SEEDING SPECIES, RATES, AND SEASONS

Spring (March 1 - May 31)

Species	Rate - Lb./Ac. in Mixture	Remarks
Grasses:		
Pensacola Bahia	7	
Common Bermuda	5	
Red Top	4	Seed in combination with either of above.
Legumes:		
Common Lespedezas (Korean & Kobe)	15	Plant in February or early March.
Partridge Pea	10	" "
Louisiana White or Ladina	3	Use inoculated seed.
Brown Top Millet	3	

Fall (September - February)

Grasses:		
Fescue	12	
Pensacola Bahia	10	
Perennial Rye	10	
Red Top	5	Seed in combination with any of the above.
Legumes:		Use inoculated seed.
Crimson Clover	10	Seed in early Fall.
Partridge Pea	10	Plant in February.
White Clover	5	Use natural seed.

Use mixtures of at least 3 species. Inoculate all legumes.

Mixtures should contain three or more of the species listed above. For example, Bahia - 7 lb., Red Top - 4 lb., and Common Lespedeza - 15 lb., total pounds per acre is 26. All mixtures should contain at least one legume.

ATTACHMENT #4

ACCESS ROAD AND DRILL SITE

1. Vegetation to be cut close to ground with minimum of soil disturbance.

2. Road and drill site to be surfaced with boards and/or gravel.

3. As soon as drilling operations cease:

   (a) If a producer, the boards and/or gravel are to be removed and gravel surface installed on only such portions of road and drill site as is needed for production purposes.

   (b) If a dry hole, the boards and gravel are to be removed and all disturbed areas seeded according to attached sheet "Seeding Species, Rates, and Seasons". Fertilization will be according to Attachment #3. Adequate cross drains are to be installed to prevent movement of soil.

ATTACHMENT #5

ROAD CONSTRUCTION

1. A specified system road to the site will be constructed according to the following engineer's report.